

# Harwich's CWMP Phasing Plan (11/19/2012)

## Wastewater Phasing Plan

Since the overall wastewater plan in the CWMP cannot be constructed as one project and will take several years to construct, a phasing plan is required. This will ensure that the wastewater plan (which is a combination of several smaller projects) progresses efficiently while meeting the needs of the town including economic development of town centers, dealing with financial impacts, minimizing traffic impacts, and addressing environmental protection.

### Wastewater Phasing Program by Phase

The proposed phasing program is shown in the attached Figure 1. Details of the proposed phasing program are described below:

#### Phase 1

The focus of this phase will be to implement the two natural nitrogen attenuation programs. The first is to fund the construction phase of the Muddy Creek bridge which will increase the existing opening to 24-ft width. This significantly inlet widening will increase the flushing in Muddy Creek and will help restore the ecological habitat. The second program is the evaluation of options to improve the natural attenuation in the Cold Brook former cranberry bog network off Bank Street. The goal is to increase the natural nitrogen attenuation from the existing 35 to 50% by adding ponds where denitrification can occur. The recommended plan would be constructed in Phase 2. Both of these projects will allow the town to monitor and confirm water quality improvements in these watersheds and to adjust future programs as needed. This phase will also include the purchase of land for the PB-3 recharge facility and will see implementation of the Hinckleys Pond restoration project.

#### Phase 2

The focus of this phase will be the Pleasant Bay watershed and to install sewers in the East Harwich Village Commercial District or East Harwich Village Center and surrounding areas to assist with enticing desired higher density development to occur while still removing significant nitrogen towards meeting the Pleasant Bay TMDL. Delaying Pleasant Bay sewer construction in this area until this phase also helps avoid time restrictions on the recent roadway improvements done on Route 137. Collected wastewater will be pumped to the Chatham Water Pollution Control Facility for treatment. A future upgrade to the facility will be required, but that upgrade can be delayed since the Chatham WPCF will have some additional capacity into the future. Depending on timing between the two communities effluent potentially can be recharged at the Chatham facility site for a few years but ultimately may require an effluent pumping station to be constructed for pumping it back to Harwich for recharge at Site PB-3. The recommended plan for the Cold Brook natural attenuation would also be implemented in this phase.

**Phase 3**

The focus of this phase will also be the Pleasant Bay watershed and will install sewers in the area north of the Harwich Village Commercial District. A small collection system area on the west side of the Pleasant Bay Watershed will be delayed until Phase 8 to allow for monitoring and evaluation of the impacts of the Muddy Creek Project. This delay will help to ensure that the extent of the wastewater collection is not over reaching, with respect to the TMDL. This phase will see the implementation of the potential Seymour Pond restoration project. The design and construction of the delayed (see above) Chatham WPCF expansion will be completed in this phase.

**Phase 4**

This phase will collect wastewater in the Northeast part of the Herring River watershed. The collected wastewater will be pumped to the new treatment plant to be constructed at Site HR-12 where the treated effluent would be recharged. The SBR treatment plant would initially be constructed for a capacity of about 0.45mgd which would treat flows from Phases 4, 5 and 6.

**Phase 5**

This phase will collect wastewater in the Northwest part of the Herring River watershed and near Site HR-12. The collected wastewater will be pumped to the treatment at Site HR-12 where the treated effluent would be recharged.

**Phase 6**

This phase will collect wastewater in the Southeast part of the Herring River watershed. This phase will also install some of the planned sewers in the Allen and Wychmere Harbor watersheds in order to begin meeting the TMDLs in those areas. Collected wastewater will be pumped to the HR-12 site for treatment and recharge. The extent of the collection system constructed in this phase will be coordinated based on the capacity of the existing facility and its ability to accept additional wastewater flow from the homes and businesses served. This phase will see implementation of the potential Bucks and John Joseph Pond restoration projects.

**Phase 7**

The focus of this phase will be to install the remaining required sewers in the Herring River (southwest) watershed to meet the TMDL. Collected wastewater flows will be pumped to the treatment and effluent recharge facility at Site HR-12. The treatment facility at Site HR-12 will be expanded to the full 0.9 mgd capacity in this phase.

**Phase 8**

The focus of this phase will be to install remaining sewers in the Saquatucket and Pleasant Bay watersheds required to meet those TMDLs. Areas to be sewerred near the Great Sand Lakes and the Campground will also be included in this phase. Collected wastewater from the Pleasant Bay area will be added to the flows pumped to the Chatham wastewater treatment facility and effluent recharged in Chatham or pumped back to Harwich for recharge as needed. Wastewater collected from the areas outside of the Pleasant Bay will be collected and treated at HR-12.

Areas in Phases 6, 7 and 8 can be adjusted as needed to meet local needs and based on feedback from water quality monitoring.

## Recommended Cost Recovery Plan

The phasing of this plan is between \$2.6 to \$47.2 million for each phase of the program - for a total of \$230 million. This includes an additional allowance of \$3.8 million for the Muddy Creek and Cold Brook attenuation projects and includes \$1.3 Million allowance for the study and restoration of Hinckleys Pond, Seymour Pond, Bucks Pond and John Joseph Pond. The initial HR-12 treatment facility will be built in Phase 4 and is proportionally more costly as it includes all the supporting buildings and common processes. It is proposed that this facility will be upgraded to accommodate the additional wastewater flow and increased treatment capacity in Phase 7. The adaptive management approach will allow the treatment facility expansion requirements and sewer service areas to be further evaluated and modified as needed between Phases 4 and 7.

Harwich's Wastewater Implementation Advisory Committee is in the process of evaluating various cost recovery models. The town has considered using a combination of methods including betterments, user fees, and the general tax base to pay for the multi-phase construction project and is currently discussing all of the options that can be implemented in a cost recovery program. Once the town decides on a program that it determines is fair and feasible, a plan will be presented to the Board of Selectmen for review, modification and final approval. The proposed program will be presented in the Final CWMP.

In the meantime the following cost tables have been presented to the Capital Outlay Committee based on the phasing plan discussed earlier and are summarized in the tables below.

**Table 1**  
**Details of Phasing Plan Costs by Phases 1-8**

Capital Outlay Committee - Requirements for CWMP			
2013 Funding Request	Phase 1	Total =	\$2,550,000
1	\$250,000	For PB-3 Recharge Facility Land Purchase	
2	\$500,000	For Hinckleys Pond Restoration	
3	\$100,000	For Cold Brook Attenuation Study	
4	\$1,700,000	For Muddy Creek Attenuation Bridge Project	
2016 Funding Request	Phase 2	Total =	\$24,300,000
1	\$22,300,000	For Design and Construction of Pleasant Bay Collection System (South)	
2	\$2,000,000	For Cold Brook Attenuation Construction Project	
2021 Funding Request	Phase 3	Total =	\$21,010,000
1	\$12,600,000	For Construction of Pleasant Bay Collection System (North)	
2	\$8,110,000	For Design and Construction of Chatham WPCF Upgrade	
3	\$300,000	For Seymour Pond Restoration	
2026 Funding Request	Phase 4A	Total =	\$34,400,000
1	\$34,400,000	For Design and Construction of Harwich Treatment Facility HR-12	
2029 Funding Request	Phase 4B	Total =	\$22,300,000
1	\$22,300,000	Design and Construction of Herring River Collection System (Northeast)	
2033 Funding Request	Phase 5	Total =	\$23,200,000
1	\$23,200,000	For Design and Construction of Herring River Collection System (Northwest)	
2038 Funding Request	Phase 6	Total =	\$21,200,000
1	\$20,700,000	For Design and Construction of AWS and Herring River (SE) Collection Systems	
2	\$250,000	For Bucks Pond Restoration	
3	\$250,000	For John Joseph Pond Restoration	
2043 Funding Request	Phase 7	Total =	\$47,200,000
1	\$26,500,000	For Design of Harwich WWTF Upgrade and Design and Construction of Herring River Collection System (Southwest)	
2	\$20,700,000	For Construction of Harwich Treatment Facility Upgrade	
2048 Funding Request	Phase 8	Total =	\$33,900,000
1	\$33,900,000	For Design and Construction of Campground Area, GSL and Final PB Area to Meet TMDL	
Total Funding Request	Phases 1-8	Total =	\$230,000,000

**Table 2**  
**Details of Phasing Plan Costs by Phases 1-8 (By Year)**

Phase	Fiscal Year	Duration (years)	Amount
1	2013 to 2015	3	\$2,550,000
2	2016 to 2020	5	\$24,300,000
3	2021 to 2025	5	\$21,010,000
4A	2026 to 2028	3	\$34,400,000
4B	2029 to 2032	4	\$22,300,000
5	2033 to 2037	5	\$23,200,000
6	2038 to 2042	5	\$21,200,000
7	2043 to 2047	5	\$47,200,000
8	2048 to 2052	5	\$33,900,000
Total Program	2013 to 2052	40	\$180 Million to \$230 Million



